

IN THE CLAIMS

Claims 1-22 are cancelled herein.

1-22. (Cancelled)

23. (Currently Amended) A method for treating a subject by biventricular cardiac stimulation comprising the steps of:

in a subject suffering from congestive heart failure, implanting a housing containing a first pacing circuit that generates pacing pulses having an energy, a first sensing circuit, a second pacing circuit that generates pacing pulses having an energy, a second sensing circuit, and a control circuit connected to said first and second pacing circuits and to said first and second sensing circuits;

implanting a first pacing electrode to interact with a first ventricle of a heart of the subject and connecting said first pacing electrode to said first pacing circuit to receive signals from the first pacing circuit to pace the first ventricle with said pacing pulses generated by said first pacing circuit;

implanting a first sensing electrode to interact with the first ventricle of the heart of the subject and connecting said first sensing electrode to the first sensing circuit to transfer signals to the first sensing circuit to sense the first ventricle;

implanting a second pacing electrode to interact with a second ventricle of the heart of the subject and connecting said second pacing electrode to said second pacing circuit to receive signals from the second pacing

circuit to pace the second ventricle said pacing pulses generated by said second pacing circuit;

implanting a second sensing electrode suited to interact with the second ventricle of the heart of the subject and connecting said second sensing electrode to the second sensing circuit to transfer signals to the second sensing circuit to sense the second ventricle;

with said control circuit and the first sensing circuit, detecting a signal typical of an evoked response to a pacing pulse delivered by the first pacing circuit, by sensing within a first time interval that follows after a pacing pulse delivered by the first pacing circuit;

with said control circuit and said first sensing circuit, also detecting, within a first time window, a signal typical for an R-wave transferred from the second ventricle, or from some other part of the heart, to the first ventricle, wherein said first time window is not identical with the first time interval;

operating the control circuit with time cycles corresponding to normal heart cycles and, in the control circuit, if within one of said time cycles pacing pulses are delivered both by the first pacing circuit and by the second pacing circuit, determining these pacing pulses to have been delivered substantially simultaneously;

in said control circuit, distinguishing between a real loss of capture and fusion
by

- (a) determining whether during a time cycle the signal typical of an evoked response to a pacing pulse delivered by the first pacing circuit is sensed within the first time interval, and
- (b) determining whether during the same time cycle the signal of the kind typical for an R-wave transferred from the second ventricle, or from some other part of the heart, to the first ventricle is detected within the first time window, and

operating at least said first and second pacing circuits with said control circuit differently dependent on whether (a) and (b) are fulfilled respective combinations of fulfillment and non-fulfillment of (a) and fulfillment and non-fulfillment of (b).

24. (Previously Presented) A method as claimed in claim 23 comprising implanting said housing, said first and second pacing electrodes, and said first and second sensing electrode in a living subject suffering from a bundle branch block.'

Claim 25 has been amended as follows:

25. (Currently Amended) A method according to claim 23 comprising the steps of:

with said control circuit and said second sensing circuit, detecting a signal typical of an evoked response to a pacing pulse delivered by the second pacing circuit, by sensing within a second time interval that follows after a pacing pulse delivered by the second pacing circuit;

with said control circuit and said second sensing circuit detecting, within a second time window, a signal of the kind typical for an R-wave transferred from the first ventricle, or from some other part of the heart,

to the second ventricle, wherein this second time window is not identical with the second time interval;

in said control circuit, also distinguishing between a real loss of capture and fusion by

- (c) determining whether during a time cycle the signal typical of an evoked response to a pacing pulse delivered by the second pacing circuit is sensed within the second time interval, and
- (d) determining whether during the same time cycle the signal of the kind typical for an R-wave transferred from the first ventricle, or from some other part of the heart, to the second ventricle is detected within the second time window; and

operating at least said first and second pacing circuits with said control circuit differently also dependent on whether (c) and (d) are fulfilled respective combinations of fulfillment and non-fulfillment of (c) and fulfillment and non-fulfillment of (d).

26. (Previously Presented) A method according to claim 23 comprising, through said control circuit, operating at least said first and second pacing circuits in a first manner if both (a) is not fulfilled and (b) is fulfilled, and in a second manner if both (a) is not fulfilled and (b) is not fulfilled.

27. (Previously Presented) A method according to claim 26 comprising, in said first manner, operating at least said first and second pacing circuits as if a real loss of capture has occurred in the first ventricle and, in said second manner, as if fusion has occurred in the first ventricle.

28. (Previously Presented) A method according to claim 27 comprising, through said control circuit, if both (a) not being fulfilled and (b) being fulfilled has occurred a predetermined number of times, varying the energy of the pacing pulses delivered by the first pacing circuit and detecting, with the first sensing circuit, signals typical for evoked responses during the first time interval to determine a suitable pulse energy for the pacing pulses delivered by the first pacing circuit.

29. (Previously Presented) A method according to claim 27 comprising, through said control circuit, if both (a) not being fulfilled and (b) not being fulfilled has occurred a predetermined number of times, modifying at least one time period that controls the operation of at least said first and second pacing circuits.

30. (Previously Presented) A method according to claim 29 comprising, through said control circuit, modifying said time period by increasing or decreasing said time period.

31. (Previously Presented) A method according to claim 23 comprising, through said control circuit, starting said first time interval 0-3 ms after delivery of a pacing pulse by the first pacing circuit and setting said first time interval to be between 25ms and 100ms long.

32. (Previously Presented) A method according to claim 31, comprising starting said first time window between 0 ms and 150 ms after the delivery of the pacing pulse by the first pacing circuit.

33. (Previously Presented) A method according to claim 31 comprising, through said control circuit, ending said first time window at least before 400ms after the delivery of the pacing pulse by the first pacing circuit.

Claim 34 has been amended as follows:

34. (Currently Amended) A method according to claim 31 comprising, through said control circuit, including a blanking window in said first time window in which sensing ~~or~~ of an R-wave transferred from said second ventricle, or from some other part of the heart, is precluded.

35. (Previously Presented) A method according to claim 25 comprising, through said control circuit, operating at least said first and second pacing circuits in a first manner if both (c) is not fulfilled and (d) is fulfilled, and in a second manner if both (c) is not fulfilled and (d) is not fulfilled.

36. (Previously Presented) A method according to claim 35 comprising, in said first manner, operating at least said first and second pacing circuits as if a real loss of capture has occurred in the second ventricle and, in said second manner, as if a fusion has occurred in the second ventricle.

37. (Previously Presented) A method according to claim 36 comprising, through said control circuit, if both (c) not being fulfilled and (d) being fulfilled has occurred a predetermined number of times, varying the energy of the pacing pulses delivered by the second pacing circuit and detecting, with the second sensing circuit, signals typical for evoked responses during the second time interval to determine a suitable pulse energy for the pacing pulses delivered by the second pacing circuit.

38. (Previously Presented) A method according to claim 36 comprising, through said control circuit, if both (c) not being fulfilled and (d) being not fulfilled has occurred a predetermined number of times, modifying at least one time period that controls operation of at least said first and second pacing circuits.

39. (Previously Presented) A method according to claim 38 comprising, through said control circuit, modifying said time period by increasing or decreasing said time period.

40. (Previously Presented) A method according to claim 23 comprising, through said control circuit, starting said first time interval 0-3 ms after delivery of a pacing pulse by the first pacing circuit and setting said first time interval to be between 25ms and 100ms long.

41. (Previously Presented) A method according to claim 40, comprising starting said first time window between 0 ms and 150 ms after the delivery of the pacing pulse by the first pacing circuit.

42. (Previously Presented) A method according to claim 40 comprising, through said control circuit, ending said first time window at least before 400ms after the delivery of the pacing pulse by the first pacing circuit.

Claim 43 has been amended as follows:

43. (Currently Amended) A method according to claim 40 comprising, through said control circuit, including a blanking window in said first time window in which sensing ~~or~~ of an R-wave transferred from said second ventricle, or from some other part of the heart, is precluded.